Out-of-pocket spending on prescription drugs

Jacqueline Luffman

Prescription drugs have had a huge effect on our lives. Seniors continue to enjoy a normal life because of heart medications, hospital stays are reduced because of pain relief medications, untold deaths are prevented by vaccinations and antibiotics, and so on. With the advent of new vaccines, cancer therapies and other potential 'wonder' drugs, pharmaceuticals are becoming a large factor in the overall cost of health care. Since 1997, government expenditure on drugs has exceeded physician services, and ranks second only to hospitals (CIHI 2004). The elderly have greater health care needs than younger people and tend to use more health services. This, coupled with population aging, means that health care costs can be expected to increase in the coming years.

Unlike other aspects of the health care system, no universal coverage is in place for prescription drugs. Nevertheless, they are a common household expense, with over 300 million prescriptions filled each year—about 10 for each man, woman and child (CFHCC 2002).[1] In 2002, over 6 in 10 households reported out-of-pocket spending on prescription drugs totalling $3 billion.

In recent years, government cutbacks have led to concern that Canadians may be increasingly bearing the brunt of health care costs themselves—for everything from drugs to home care. Although public insurance is available for prescription drugs in all provinces, coverage varies widely and often depends on age and income.[2] Employer-sponsored private health care plans often offer some type of prescription drug coverage, but such plans are not mandatory and vary greatly in terms of coverage, method of reimbursement, co-payments, and deductibles. People with no coverage (such as the self-employed) can enrol in private plans.

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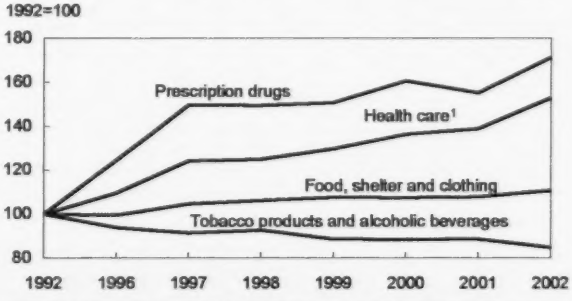
This study explores out-of-pocket prescription drug spending using the Family Expenditure Survey and the Survey of Household Spending (SHS) (see *Data sources and definitions*). Questions explored include: Are Canadians spending more than previously? Does spending increase with household income? Are seniors paying more than younger families? Which households spend a high percentage of income on prescription drugs? Does spending vary by region?

Still a small portion of the overall budget

While out-of-pocket spending on prescription drugs remains a small percentage of the overall household budget (less than 1%), the average expenditure rose 71% (in 2002 dollars) between 1992 and 2002—from $127 to $218 (Chart A). (Among those who reported out-of-pocket spending, the average was $222 in 1992 and $378 in 2002.) In comparison, overall household health care expenditure rose 53%, while food, clothing and shelter increased only 11%.

Chart A Household spending on prescription drugs jumped over 70% in 10 years.



Sources: Family Expenditure Survey (1992, 1996), Survey of Household Spending (1997–2002)
Note: Based on constant dollars.
1 Includes prescription drugs.

Data sources and definitions

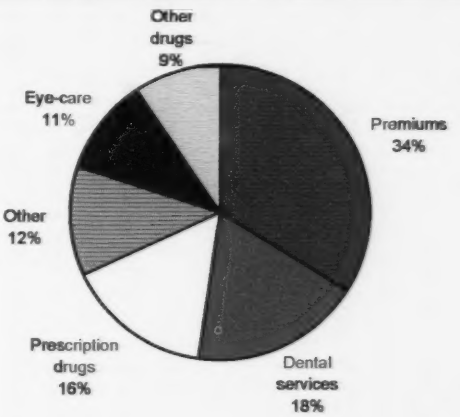
The **Survey of Household Spending** (SHS) is an annual survey conducted since 1997. It gathers detailed information about household spending during the previous calendar year. The survey covers about 98% of the population in the 10 provinces. People living in residences for senior citizens (such as nursing homes) as well as those in all types of institutions (including hospitals and prisons) are excluded. Data for the territories were collected for the years 1997 to 1999 but sampling variability precludes release.

The SHS samples over 20,000 households. For 1997 and subsequent years, sample size was approximately 50% larger than for the former **Family Expenditure Survey** (1992 and 1996). As a result, some caution must be taken when comparing expenditure data over time. Definitions for prescription drug expenditures are comparable for the two surveys. For more information on the Survey of Household Spending, see Statistics Canada 2002.

Out-of-pocket spending on prescription drugs refers to expenditures for medicines, drugs and pharmaceutical products prescribed by a doctor. Expenditures are amounts not covered by insurance (such as exclusions, deductibles and expenses over limits), and exclude payments for which the household is reimbursed. Prescription drugs taken while in the hospital are excluded since they are paid for by the province.

In **senior households,** at least one person was aged 65 or over—approximately 2.8 million households. In senior couple households (992,000), at least one spouse was 65 or older (in 88% of cases, both individuals were in this situation). Just over one million seniors lived alone.

Chart B Health insurance premiums account for the largest share of health care expenditures.



Source: Survey of Household Spending, 2002

Rising out-of-pocket expenses are likely due, in part, to the introduction of new drugs, which are invariably more expensive (CP 2004). Indeed, drug prices (as measured by the consumer price index for prescribed medicines) increased steadily from 1992 to 2002, generally in step with overall inflation.[3] Another contributing factor is the higher volume of drug use resulting from a larger as well as an aging population. Canadian retail pharmacies filled 361 million prescriptions during 2003, a jump of 7.9% from 2002 (McGovern 2004). Also, as a result of shorter hospital stays, drugs administered in hospitals and covered under medicare are being paid for by patients themselves once they are released.

Prescription drug spending made up about 16% of total health care spending in 2002—little changed from 1992 (Chart B). Health insurance premiums accounted for a larger portion (31% in 1992 and 34% in 2002).[4]

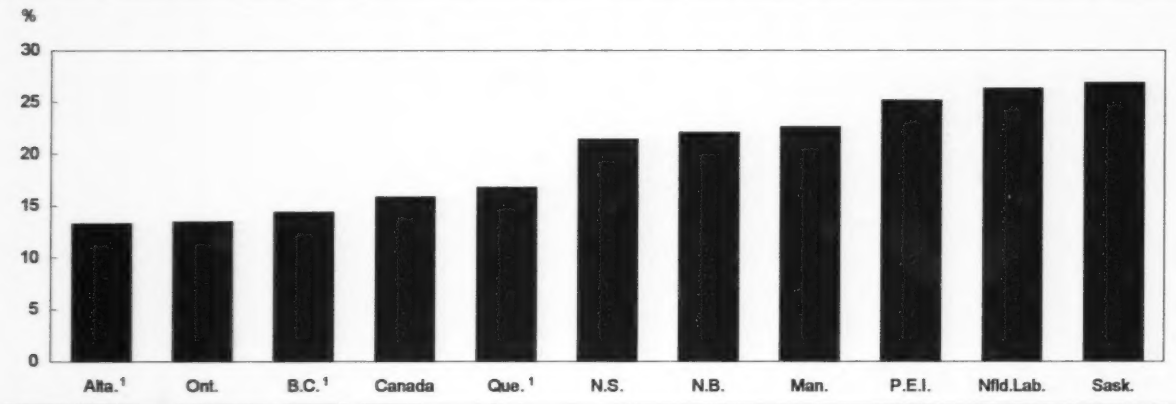
Even if households qualify for provincial drug plans, many provinces require an additional premium to cover expenses. Deductibles also differ by province. As a result, the portion paid by the household varies widely by province, reflecting the diversity of drug plans as well as age and health of the population. In 2002, Saskatchewan families spent 27% of their health care dollars on prescription drugs (about $386). Alberta and Ontario spent the least, about 13% ($264 and $188) (Chart C).[5]

Drug expenditures vary greatly

Some households incur much higher prescription drug expenses than others. While this is so for relatively few people,[6] many argue that it goes against the fundamental objective of Canadian health policy (Canada 2002). In some cases, those facing a significant financial burden may discontinue or not even begin treatment requiring expensive medications.

One of the recommendations in the 2002 Senate report on the health of Canadians was that provinces and territories should put in place programs to ensure that households would never have to pay more than

Chart C The portion of out-of-pocket health care expenditures for prescription drugs varies by province.



Source: Survey of Household Spending, 2002
1 Had public health-care premiums in 2002.

3% of their after-tax income for prescription drugs (Canada 2002). Most households spending this much would pay out over $1,000 annually. According to the SHS, about 7% of households spent more than the recommended 3% in 2002 (Table 1), ranging from 16% in Saskatchewan to 3% in Ontario. Between 1997 and 2002, Nova Scotia experienced the largest percentage point increase.

Table 1 Households spending more than 3% of after-tax income on prescription drugs

	1997	1998	1999	2000	2001	2002
			%			
Canada	**5.9**	**5.8**	**6.1**	**6.3**	**6.2**	**6.5**
Newfoundland and Labrador	8.9	8.8	8.8	8.9	8.6	10.6
Prince Edward Island	10.4	11.8	10.7	13.2	12.9	11.7
Nova Scotia	6.0	6.8	6.6	7.8	15.0	9.3
New Brunswick	8.0	8.0	9.0	8.5	11.0	10.2
Quebec	7.6	7.2	7.3	8.9	8.9	9.5
Ontario	4.0	4.1	4.5	3.6	3.0	3.3
Manitoba	8.8	8.0	8.0	10.5	8.5	10.3
Saskatchewan	15.9	15.6	14.9	15.8	16.4	15.9
Alberta	5.5	5.1	5.6	6.4	5.6	5.2
British Columbia	4.0	4.3	5.0	4.2	5.3	5.7

Source: Survey of Household Spending

Another way to examine changes in out-of-pocket prescription drug spending is to divide those reporting the expenditure into quartiles (Table 2).[7] The three lowest quartiles do not spend much. Rather, it is the top 25% (highest quartile) that accounts for the majority of expenditures (72%). Between 1992 and 2002, expenditures by this group increased more, even after controlling for inflation.

A large proportion of these families were senior households (43%). Also, their major source of income was more likely to be from government transfer payments (such as OAS, GIS, or other social assistance), and they were more likely to have health premium expenditures. In contrast, the lowest quartile tended to be one-person, non-senior households. They were half as likely to have their major source of income from government sources and not as likely to report health premiums.

Table 2 Prescription drug spending

	Amount		Share	
	1992	2002	1992	2002
Expenditure quartile	$ (2002)		%	
Lowest	24	32	2.7	2.5
Second	73	101	9.7	7.8
Third	170	237	15.7	18.3
Highest	638	942	71.9	71.5
Average	222	326	...	...
Median	100	170	...	...

Sources: Family Expenditure Survey, Survey of Household Spending

Senior households spend the most

The financial burden of prescription drugs on fixed-income households has received widespread publicity. Seniors in this position are considered the most vulnerable because they are less likely to have private insurance.[8] They are also more likely to have chronic health problems requiring regular medication. As a result, all provinces have introduced some form of drug plan for those 65 and over. Despite these public plans, senior households are still more likely to report out-of-pocket prescription drug spending and to have higher-than-average expenditures.

In general, among households with prescription drug expenses, total spending is less for senior households than for other households—$42,400 in 2002, compared with $67,300 for non-senior households (Table 3).[9] More than three-quarters of households with at least one senior reported prescription drug spending, at an average of a little more than $500 (about 1.2% of their total spending that year). Prescription drugs make up the largest portion of out-of-pocket health care spending for senior households; some 27.3% of their health care budget was allocated to this item compared with 17.7% by non-senior households.[10] For seniors living alone, the expense accounted for an even larger share (29.0%). This same group also spent a slightly higher proportion of their total budget on prescription drugs (1.5%) compared with all senior households (1.2%) and non-senior ones

Table 3 Health care spending of households with prescription drug expenditures

		Senior households[1]			
	Total households	Total[1]	Couples	One person	Non-senior households
Households reporting prescription drugs	**7,828,100**	**2,171,500**	**794,400**	**756,400**	**5,656,600**
Proportion of all households (%)	65.1	77.6	80.1	74.9	61.3
Income before taxes[2] ($)	60,022	42,468	45,219	22,545	66,780
Government transfers major source (%)	22.1	57.8	58.7	76.4	8.5
			$		
Total household spending	60,377	42,416	47,465	23,130	67,272
Health care spending	1,851	1,899	2,268	1,211	1,833
Supplies	37	65	78	54	26
Non-prescription drugs	158	148	163	115	161
Dental services	340	334	442	170	342
Premiums	586	490	597	227	622
Prescription drugs	378	518	619	352	324
Share of health care (%)	20.4	27.3	27.3	29.0	17.7
Share of household spending (%)	0.6	1.2	1.3	1.5	0.5

Source: Survey of Household Spending, 2002
1 All households with at least one person 65 or older.
2 Earnings, investment income, government transfers and other income.

(0.5%).[11] Senior households with prescription drug expenses also tended to be on a fixed income—almost 60% relied on government transfer payments as their major source of income compared with less than 10% of non-senior households.

Explaining spending patterns

Many factors work in combination to explain why some households spend more than others on prescription drugs. Naturally, health and lifestyle factors are among the most important. While the amount spent on health care premiums is available in the SHS, quality and details of coverage are not known. However, one can look at how prescription drug spending is distributed throughout the population and which household characteristics might precipitate higher or lower spending.[12] Because 35% of respondents did not report a drug expenditure in 2002, a regression technique that can account for many zeros was used to predict expected mean values of prescription drug spending. This allowed them to remain in the sample. The Tobit regression model is a powerful tool that examines the importance of a particular variable by holding the others constant (see *Tobit regression model*).

Region

Since prescription drug policy lies mainly under provincial jurisdiction, location clearly affects how much a household spends on prescription drugs. In fact, controlling for household type, income and other characteristics showed province of residence to be significantly associated with prescription drug spending.

Ontario families spent the least ($257 in 2002) on prescription drugs (Table 4). Ontario's public drug benefit plans are generally limited to seniors, social assistance recipients, and heavy users. However, non-seniors may have access to high-quality private drug plans through an employer. Indeed, employees in high-wage, unionized, full-time, and permanent jobs as well as those in large firms are much more likely to have all types of non-wage benefits (Marshall 2003). This is certainly true for public servants and auto workers in Ontario (whose jobs are largely unionized). An estimated 62% of Ontarians are covered by private drug plans, the highest level in Canada (AMFGTR 2000). Smaller, less industrialized provinces are less likely to have private plans that cover expenses not picked up by the public plan (CFHCC 2002).

Tobit regression model

Tobit regression is commonly used to analyze household-based expenditure surveys. It is designed to take into account households reporting no expenditures during any year. Some expenditures such as food, shelter and utilities are reported by virtually all participants, but many expenditures are not universal because of individual preference. The Tobit model is used to handle censored data where an expense is not universal.

About 35% of households did not report any out-of-pocket prescription drug expenditures in 2002. In this case, a Tobit model can be used to estimate the relationship between the independent variables and the amounts reported for all households, including those with no prescription drug expenditures. The results in Table 4 are the expected value of expenditures calculated from the estimated coefficients using a Tobit model and the mean values of the variables. The variables in the model were screened for outliers. Households with no before-tax income were removed from the analysis.

Notably, some differences exist between those reporting prescription drug expenditures and those not reporting any. Reasons for the latter are difficult to discern and may vary each year. Those who reported no prescription drug expenditures in 2002 were more likely to be one-person households (non-senior), younger, and less likely to spend on health premiums and other types of health care (dental care, eye care). It is certainly plausible that these younger households were generally healthier and therefore less likely to need prescription drugs—at least in that particular year. On the other hand, it is also possible that those with no prescription drug insurance (about 55% of those reporting no prescription drug expenses also reported no health premiums) may have been deterred by the expense (see ***Measuring out-of-pocket spending on prescription drugs***).

Some provinces face greater challenges than others in meeting the health care needs of their citizens. Saskatchewan families had an average expenditure of $415, the highest in Canada. Saskatchewan also has the highest percentage of senior citizens (15%) and one of the highest proportions of Aboriginal people (13%).[13] In addition, the large farming community means that many people have no access to prescription drug insurance through employment. (About 21% of the population are self-employed—the highest proportion in Canada.) Senior couple households in Saskatchewan had an average expenditure of $1,044, the highest of all provinces.

Table 4 Tobit mean expected values of prescription drug spending for all households

	All households	Couples with at least one senior	One person households
Total	**12,021,000**	**992,000**	**3,049,000**
		$	
Average prescription drug spending[1]	318	561	189
Household income before taxes			
Quartile 1 (less than $26,176)	290*	636	202*
Quartile 2 ($26,176 to $48,999)	357	546	184
Quartile 3 ($49,000 to $78,149)	323	509	159
Quartile 4 ($78,150 and over)	304	496	112
Major source of income			
Government transfers	389*	609	239
Other	299	498	157
Homeowner	348	555	213
Renter	262*	599	171
No spending on tobacco products	318*	556	207
Spend on tobacco products	318	579	150
Pay health premiums	358*	603	220*
No health premiums	270	496	161
Region			
Atlantic provinces	403*	770*	243*
Quebec	354*	742*	219*
Ontario	257	333	133
Manitoba	370*	820*	260*
Saskatchewan	415*	1,044*	347*
Alberta	321*	591*	198*
British Columbia	335*	560*	173*
Urban household	299	515	168
Rural household	345	607	218
Earners in household			
No full-time earner	359	569	215
One full-time earner	284*	504	135*
Two full-time earners	295	442	...
3 or more full-time earners	310	...	...
No part-time earner	309	562	200
One part-time earner	310*	544	146
Two part-time earners	370*	625	...
3 or more part-time earners	368*	...	...
Unionized	301*	523	157
Non-union	326	565	195
Female reference person	...	...	246*
Male reference person	...	...	127
Senior in household	460*	...	295*
No seniors	275	...	136
Children under 15	290	...	...
No children under 15	329	...	...
Household size			
1 to 3	313*	...	...
4 or more	332	...	...

Source: Survey of Household Spending, 2002
* *Statistically different from the coefficient of the reference group, p<0.05.*
1 Includes households with no reported prescription drug expenses.

Families in Alberta ($321), British Columbia ($335) and Quebec ($354)[14] spent less than in the Atlantic provinces ($403) and Manitoba ($370)—reflecting differences in prescription drug coverage, and in health and age structure. In Atlantic Canada, government-sponsored plans do not always cover catastrophic drug circumstances; an estimated 30% of Atlantic Canadians would not be covered if they spent a large amount on drugs (AMFGTR 2000).

Age

Age is an important consideration in explaining differences in prescription drug spending. The presence of a senior in the household significantly increased prescription drug spending (the expected mean value was $460 compared with $275 for households with no seniors). However, for senior couple households, provincial variations are still strongly significant, even after controlling for other characteristics. Pre-tax income, for example, was less of a factor than province of residence among senior couple households (Table 4).

Government transfers

Although spending on prescription drugs seems to decrease as household income rises, most of the differences are not statistically significant. However, the amount spent is a higher proportion of household income for low-income groups than for higher-income ones.

Households whose major source of income was government transfer payments spent more on prescription drugs (expected mean value of $389), compared with those whose income came mostly

Measuring out-of-pocket spending on prescription drugs

Data on prescription drug expenditures rely heavily on the respondent's interpretation of the question. Variation in coverage, method of payment, and deductibles in many private and public insurance plans also adds to the complexity. For example, respondents are asked to exclude amounts for which they were reimbursed, but this may be difficult to calculate for some types of insurance. In many cases, beneficiaries must keep receipts to document drug expenditures. Once the deductible amount is reached, they must then submit a claim along with the receipts to receive payment from the government or private plan. This lack of claim–adjudication link may result because some beneficiaries do not remember to make their claims. This has been called the 'shoebox effect' (Anis et al. 2001).

In addition, households with at least some prescription drug expenditures covered by public provincial programs (such as seniors or those on social assistance) may nevertheless report expenditures or report more than the maximum allowable under a provincial prescription drug plan. Reasons include:

- In some cases, insurance premiums for a provincial prescription drug plan may have been reported as prescription drug spending.
- People who change insurers may not request the required documentation from their previous insurer to ensure that they do not spend more than the maximum.
- Prescription drug spending while persons are temporarily outside their home province may not be covered under the provincial plan.
- Spending could be on drugs not covered under the provincial formulary.

For more information, see http://www.statcan.ca/english/freepub/82-401-XIE/2002000/considerations/dr/30dr.htm.

from other sources such as wages, salaries, self-employment, or investments (expected mean value of $299). Even though public plans are often designed to help those in low income or on government assistance, the association is significantly positive. Possibly, households lack knowledge about provincial drug benefit plans and do not claim their drug expenditures, or perhaps they are not sure what to report (Millar 1999). For example, among individuals whose main income source was Old Age Security and the Guaranteed Income Supplement, only 31% reported having prescription drug coverage.[15]

Health premiums

Households paying health premiums spent more on prescription drugs than those not paying premiums (expected mean values of $358 versus $270).[16] Among senior couple households, however, no statistically significant difference existed, probably because most seniors are covered under provincial plans that do not necessarily require a premium.[17]

Summary

As part of the growing cost of health care, governments are re-examining their role in providing prescription drug benefits (an area not mandated by the Canada Health Act). Provinces are spending a large percentage of their health care dollars for prescription drugs ($19.6 billion annually across Canada) (CP 2004). Consumers, too, are spending more, even though it remains a small portion of the overall household budget for most. Those who spend the most on prescription drugs (the top quartile) increased their spending between 1992 and 2002. In 2002, their expenditures exceeded $2.1 billion—72% of total out-of-pocket prescription drug spending that year.

Senior households continue to spend more than a quarter of their health care budget on prescription drugs. The proportion of all households spending more than 3% of their income on prescription drugs (generally a sign of high-cost burden) remains small (7% in 2002). However, the percentage has slowly increased since 1997, and in most provinces it is much higher.

Province of residence is the major factor affecting out-of-pocket prescription drug expenditures, even after taking into account income levels and other household characteristics. As a result, households with similar incomes spend different amounts depending on where they live.

Increases in out-of-pocket prescription drug expenditures can be difficult to explain. While drug prices have remained relatively stable vis-à-vis the cost of living, other factors may be at play. These include rising drug use, the entry of new drugs, changes in the health of the population, an aging population, and consumer expectations and behaviour. Moreover, provincial governments regularly change the conditions of public coverage and may be slow to include new drugs. Those most affected are likely to be the elderly, people with severe medical conditions, and individuals suffering from multiple chronic ailments requiring numerous medications.

Notes

1 In 2001, public insurance plans covered approximately 46% ($6.1 billion) of total prescription costs, and private insurance plans covered approximately 34% ($4.5 billion). Individuals paid the remaining 20% ($2.6 billion) out of their own pockets (CIHI 2004).

2 For information on provincial and territorial drug subsidy programs including eligibility, premiums, deductibles, co-payments, maximums and Web sites, refer to the appendix in CIHI 2004.

3 There is no completely authoritative price index for all drugs sold in Canada, and each approach has its limitations and assumptions (CIHI 2004). For example, the consumer price index (CPI) for prescribed medicines does not differentiate between new (and more expensive) drugs added to the market versus older drugs that may have decreased in price. However, a review by CIHI found that the CPI and the Industrial Product Price Index for drugs, as well as the Patented Medicine Price Index and provincial drug plan price indexes, have remained virtually unchanged since about 1993 (see CIHI 2004: 41-42).

4 Health insurance premiums are paid for provincial or territorial hospital, medical and drug plans; private health insurance plans; dental plans (sold as separate policies); and accident and disability plans. A new drug plan was introduced in Quebec in 1997 requiring most adults without an employer plan to pay up to $460 in health care premiums.

5 Residents of Alberta, British Columbia and Quebec must pay public health care premiums, which are included in their total health care expenditures. A public premium is a block payment made through income taxes. Because other provinces do not have premiums, the proportion of health care expenditures accounted for by prescription drugs in these three provinces is lower than if these premiums were excluded from Chart C.

6 One report estimated that 100,000 Canadians experience annual drug expenses exceeding $5,000 (CFHCC 2002).

7 Quartiles are created by ranking households in ascending order of total prescription drug spending and partitioning the households into four groups of equal size.

8 Although some seniors maintain drug coverage from a work plan after they retire, most private plans are associated with people currently working.

9 The average income of seniors is less than that of non-seniors, but their living expenses tend to be lower as well. For example, they are less likely to have mortgage payments, children in school, and work-related expenses.

10 The total health care expenditure of senior households is reduced in provinces such as Quebec where public drug plan premiums, deductibles and co-payments are lower for seniors than for non-seniors in the same income group. This would have the effect of increasing the proportion of total expenditures accounted for by prescription drugs.

11 Statistically significant difference at the .05 level.

12 For studies that use prescription drug expenditure data from the SHS or FAMEX in the absence of any other health indicators, refer to Todd 2001 and Alan et al. 2003.

13 Aboriginals who are Registered Indians or eligible Inuit have very good coverage because of the federal Non-insured Health Benefits program. Métis and non-status Indians are more likely than the non-Aboriginal population to be underinsured or not insured at all.

14 Again, people in these three provinces must pay public health care premiums.

15 In addition, low-income families may be covered by plans with very high expenditure thresholds. And although individuals on social assistance may receive prescription drugs virtually free of charge, some plans require recipients to make co-payments or pay dispensing fees.

16 In addition to prescription drugs, the private insurance premium category in the SHS includes supplementary coverage and extended benefits. The public premium category includes public hospital and medical plans as well as drug plans. Thus, premiums may not be related to prescription drug expenditures. It is impossible with the SHS to determine whether a household has prescription drug insurance per se (that is, premiums are assigned to their respective private or public premium categories, while deductibles and co-payments count as out-of-pocket expenditures).

17 Many provinces reduce premiums (if applicable), deductibles and co-payments for seniors. This finding may indicate that provincial plans are more similar among seniors than among other demographic groups.

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